

Sub
C1 ~~1~~

1. A method for assembling an overlay to a wheel having a disk portion and a rim portion circumscribing said disk portion, said disk and rim portions defining an outboard surface of said wheel, said method comprising the steps of:

forming said overlay to have an inboard surface configured to face said outboard surface of said wheel upon assembling said overlay to said wheel;

providing a means for temporarily securing said overlay to said outboard surface of said wheel and for positively positioning said overlay on said outboard surface of said wheel, said securing and positioning means causing said overlay to be spaced apart from said outboard surface of said wheel so as to define a gap therebetween;

depositing a curable adhesive on at least one of said inboard and outboard surfaces such that said curable adhesive is between said overlay and said wheel upon assembling said overlay with said wheel; and

temporarily securing said overlay to said outboard surface of said wheel with said securing and positioning means so as to positively position said overlay relative to said outboard surface of said wheel and so as to form said gap therebetween, said curable adhesive filling at least a portion of said gap, said securing and positioning means securing said overlay for a duration sufficient for said curable adhesive to cure and thereby permanently secure said overlay to said wheel.

2. The method of Claim 1 wherein said curable adhesive is a moisture-curable adhesive, and wherein said ^{temporarily and positioning} securing step comprises said curable adhesive filling a limited portion of said ^{at least one} gap so as to provide a quantity of moisture-laden air trapped between said overlay and said wheel.

3. The method of Claim 1 wherein said curable adhesive is an air-curable adhesive, and wherein said ^{temporarily and positioning} securing step comprises said curable adhesive filling a limited portion of said ^{at least one} gap so as to provide a quantity of air trapped between said overlay and said wheel.

1 4. The method of Claim 1 wherein said providing step comprises
2 providing said securing and positioning means in the form of a second
3 adhesive on at least one of said inboard and outboard surfaces, said second
4 adhesive having mechanical properties that are lower than corresponding
5 mechanical properties of said curable adhesive.

C 1 5. The method of Claim 4 wherein said ^{temporarily and positioning} securing step comprises
2 adhering an adhesive tape to at least one of said inboard and outboard
3 surfaces, said adhesive tape constituting said second adhesive.

C 1 6. The method of Claim 4 wherein said ^{temporarily and positioning} securing step comprises
2 depositing a hot melt adhesive on at least one of said inboard and outboard
3 surfaces, said hot melt adhesive constituting said second adhesive.

1 7. The method of Claim 1 wherein said forming step further
2 comprises forming a plurality of projections on said inboard surface of said
C 3 overlay, said plurality of projections constituting said ^{temporarily} securing and
C 4 positioning means, and wherein said ^{temporarily and positioning} securing step comprises resiliently
5 engaging each of said plurality of projections with said outboard surface of
6 said wheel.

C 1 a 8. The method of Claim 1 wherein said ^{temporarily and positioning} securing step comprises
2 securing said overlay to said wheel with a fastener, said fastener
C 3 constituting said ^{temporarily} securing and positioning means.

1 9. A method for assembling an overlay to a wheel having a disk
2 portion and a rim portion circumscribing said disk portion, said disk and
3 rim portions defining an outboard surface of said wheel, said method
4 comprising the steps of:

5 forming said overlay to have an inboard surface configured to
6 face said outboard surface of said wheel upon assembling said overlay to
7 said wheel, said overlay being formed to further have a plurality of
8 projections extending from said inboard surface, said plurality of
9 projections being adapted to temporarily secure said overlay to said
10 outboard surface of said wheel, center said overlay on said outboard surface

11 of said wheel, and cause said overlay to be spaced apart from said outboard
12 surface of said wheel so as to define a gap therebetween;

13 depositing a curable adhesive on at least one of said inboard
14 and outboard surfaces such that said curable adhesive is between said
15 overlay and said wheel upon assembling said overlay with said wheel; and

16 assembling said overlay to said wheel by resiliently engaging
17 each of said plurality of projections with said outboard surface of said
18 wheel so as to temporarily secure said overlay to said outboard surface of
19 said wheel, center said overlay on said outboard surface of said wheel, and
20 form said gap between said overlay and said wheel, said curable adhesive
21 filling at least a portion of said gap, said plurality of projections
22 securing said overlay for a duration sufficient for said curable adhesive to
23 cure and thereby permanently secure said overlay to said wheel.

1 // 10. The method of Claim 9 further comprising the step of forming
2 said wheel to have a wheel bead seat on said rim portion, said wheel bead
3 seat forming a peripheral surface feature on said outboard surface of said
4 wheel, wherein said assembling step comprises resiliently engaging said
5 plurality of projections with said peripheral surface feature so as to
6 secure said overlay to said wheel.

1 // 11. A method for assembling an overlay to a wheel having a disk
2 portion and a rim portion circumscribing said disk portion, said disk and
3 rim portions defining an outboard surface of said wheel, said method
4 comprising the steps of:

5 forming said overlay to have an inboard surface configured to
6 face said outboard surface of said wheel upon assembling said overlay to
7 said wheel, said overlay being configured so as to form a gap between said
8 inboard and outboard surfaces upon assembling said overlay to said wheel;

9 selectively depositing a curable adhesive on at least one of
10 said inboard and outboard surfaces such that said curable adhesive is
11 between said overlay and said wheel upon assembling said overlay with said

12 wheel, said curable adhesive being deposited in an amount that is
13 insufficient to entirely fill said gap; and

14 assembling said overlay to said outboard surface of said
15 wheel with said curable adhesive so as to form said gap and permanently
16 secure said overlay to said wheel, at least one void being present between
17 said overlay and said outboard surface of said wheel.

1 12. The method of Claim 11 wherein said depositing step comprises
2 selectively depositing said curable adhesive along a peripheral edge of said
3 at least one of said inboard and outboard surfaces so as to exclude water
4 and dirt from said gap after said assembling step.

1 13. The method of Claim 12 further comprising the step of forming
2 said wheel to have openings in said outboard surface, and wherein said
3 depositing step further comprises selectively depositing said curable
4 adhesive around said openings so as to exclude water and dirt from said gap
5 after said assembling step.

1 14. The method of Claim 11 wherein said depositing step comprises
2 depositing a second adhesive on at least one of said inboard and outboard
3 surfaces such that said second curable adhesive is between said overlay and
4 said wheel after said assembling step.

1 15. The method of Claim 14 further comprising the step of
2 temporarily securing and positively positioning said overlay on said wheel
3 with said second adhesive for a duration sufficient for said curable
4 adhesive to cure.

1 16. The method of Claim 14 wherein said second adhesive has a
2 lower maximum operating temperature than said curable adhesive, and wherein
3 said depositing step comprises selectively depositing said second adhesive
4 so as to be located at radially outward regions of said gap and selectively
5 depositing said curable adhesive so as to be located at radially inward
6 regions of said gap.

1 17. The method of Claim 14 wherein said second adhesive is a
2 UV-stable pre-colored adhesive.

1 18. The method of Claim 14 wherein said second adhesive has a
2 faster cure rate than said curable adhesive.

1 19. The method of Claim 14 wherein said second adhesive is
2 characterized by lower mechanical properties as compared to said curable
3 adhesive.

1 20. The method of Claim 11 wherein said depositing step comprises
2 selectively depositing said curable adhesive so as to alter heat transfer
3 between said wheel and said overlay.

1 21. The method of Claim 11 wherein said depositing step comprises
2 selectively depositing said curable adhesive so as to balance said wheel.

1 22. The method of Claim 11 wherein said depositing step comprises
2 selectively depositing said curable adhesive so as to alter the acoustical
3 characteristics of said overlay and said wheel.

1 23. The method of Claim 11 wherein said curable adhesive is a
2 moisture-curable adhesive, and wherein said assembling step results in said
3 at least one void entrapping moisture-laden air between said overlay and
4 said wheel.

1 24. The method of Claim 11 wherein said curable adhesive is an
2 air-curable adhesive, and wherein said assembling step results in said at
3 least one void entrapping air between said overlay and said wheel.

1 25. A method for assembling an overlay to a wheel, said method
2 comprising the steps of:

3 forming said wheel to have a disk portion and a rim portion
4 circumscribing said disk portion, said disk and rim portions defining an
5 outboard surface of said wheel, said outboard surface having apertures
6 formed therein;

7 forming said overlay to have an inboard surface configured to
8 face said outboard surface upon assembling said overlay to said wheel, said
9 overlay being configured so as to form a gap between said inboard and
10 outboard surfaces upon assembling said overlay to said wheel;

11 depositing a curable adhesive on said outboard surface such
12 that said curable adhesive is between said overlay and said wheel upon
13 assembling said overlay with said wheel, said curable adhesive being
14 selectively deposited along a peripheral edge of said outboard surface and
15 around said apertures so as to exclude water and dirt from said gap upon
16 assembling said overlay to said wheel; and

17 assembling said overlay to said outboard surface of said
18 wheel with said curable adhesive so as to form said gap and permanently
19 secure said overlay to said wheel, at least one void being present between
20 said overlay and said outboard surface of said wheel, said at least one void
21 entrapping air between said overlay and said wheel.

1 26. The method of Claim 25 wherein said depositing step comprises
2 depositing a second adhesive on at least one of said inboard and outboard
3 surfaces such that said second curable adhesive is between said overlay and
4 said wheel after said assembling step.

1 27. The method of Claim 26 further comprising the step of
2 temporarily securing and positively positioning said overlay on said wheel
3 with said second adhesive for a duration sufficient for said curable
4 adhesive to cure.

1 28. The method of Claim 26 wherein said second adhesive has a
2 lower maximum operating temperature than said curable adhesive, and wherein
3 said depositing step comprises selectively depositing said second adhesive
4 so as to be located at radially outward regions of said gap and selectively
5 depositing said curable adhesive so as to be located at radially inward
6 regions of said gap.

1 29. The method of Claim 26 wherein said second adhesive has a
2 faster cure rate than said curable adhesive.

1 30. The method of Claim 26 wherein said second adhesive is
2 characterized by lower mechanical properties as compared to said curable
3 adhesive.

1 31. The method of Claim 25 wherein said curable adhesive is a
2 moisture-curable adhesive, and wherein said assembling step results in said
3 at least one void entrapping moisture-laden air between said overlay and
4 said wheel.

1 *Sub* 32. A wheel comprising:
2 *AO* a disk portion and a rim portion circumscribing said disk
3 portion, said disk and rim portions defining an outboard surface of said
4 wheel;
5 an overlay secured to said outboard surface of said wheel,
6 said overlay having an inboard surface facing said outboard surface of said
7 wheel;
8 means between said inboard surface of said overlay and said
9 outboard surface of said wheel for temporarily securing said overlay to said
10 outboard surface of said wheel and for positively positioning said overlay
11 on said outboard surface of said wheel, said securing and positioning means
12 causing said overlay to be spaced apart from said outboard surface of said
13 wheel so as to define a gap therebetween; and
14 an adhesive disposed in said gap and permanently securing
15 said overlay to said wheel.

1 *a* 33. The wheel of Claim 32, wherein said securing and positioning
2 means comprises an adhesive tape.

1 *Sub* 34. The wheel of Claim 32 wherein said securing and positioning
2 *means* *AO* comprises a hot melt adhesive.

1 *a* 35. The wheel of Claim 32 *and overlay assembly* wherein said securing and positioning
2 means comprises a plurality of projections extending from said inboard
3 surface of said overlay, each of said plurality of projections resiliently
4 engaging said outboard surface of said wheel so as to secure said overlay to
5 said wheel.

1 *a* 36. The wheel of Claim 35 *and overlay assembly* wherein said wheel further comprises a
2 wheel bead seat formed on said rim portion, said wheel bead seat forming a

3 peripheral surface feature on said outboard surface of said wheel, said
4 plurality of projections resiliently engaging said peripheral surface
5 feature so as to secure said overlay to said wheel.

1 *a* 37. The wheel *and overlay assembly* of Claim 32 wherein said securing and positioning
2 means comprises a fastener.

1 *Sub*
23 38. An automobile wheel comprising:

2 a disk portion and a rim portion circumscribing said disk
3 portion, said disk and rim portions defining an outboard surface of said
4 wheel;

5 a wheel bead seat formed on said rim portion, said wheel bead
6 seat forming a peripheral surface feature on said outboard surface of said
7 wheel;

8 an overlay secured to said outboard surface of said wheel,
9 said overlay having an inboard surface facing said outboard surface of said
10 wheel;

11 a plurality of projections extending from said inboard
12 surface of said overlay, each of said plurality of projections resiliently
13 engaging said peripheral surface feature so as to secure said overlay to
14 said wheel and positively position said overlay on said outboard surface of
15 said wheel, said plurality of projections causing said inboard surface of
16 said overlay to be spaced apart from said outboard surface of said wheel so
17 as to define a gap therebetween; and

18 an adhesive disposed in said gap for permanently securing
19 said overlay to said wheel.

1 39. An overlay for a wheel having an outer surface and an axis,
2 said overlay comprising:

3 an ornamental panel member having a substantially uniform
4 thickness; a first surface; and an oppositely disposed second surface;

5 a decorative layer adhered to said first surface of said
6 ornamental panel member; and

7 an adhesive selectively positioned between said ornamental
8 panel member and said outer surface of said wheel, said adhesive attaching
9 said overlay directly to said outer surface of said wheel;

10 whereby said decorative layer of said first surface
11 substantially covers said outer surface of said wheel.

1 *Syl*
2 40. In a composite vehicle wheel having a wheel with a web portion
3 and a rim portion circumscribing said web portion, said web portion defining
4 an outboard surface of said composite vehicle wheel, an ornamental panel
5 member attached to said outboard surface of said web portion, said
6 ornamental panel member having a first surface and an oppositely disposed
7 second surface:

8 an adhesive selectively positioned between said ornamental
9 panel member and said outboard surface of said wheel, said adhesive
10 attaching said overlay directly to said outboard surface of said wheel;

11 a decorative layer adhered to said first surface of said
12 ornamental panel member; and

13 said ornamental panel member being a thin panel of
14 substantially uniform thickness;

15 whereby when said ornamental panel member is directly
16 attached to said outboard surface of said wheel by said adhesive said
17 decorative layer of said first surface substantially covers said outboard
surface of said wheel.